

REMARKS

Claims 12-21, 23 and 25-48 are pending in this application. By this Amendment, independent claims 12, 16, 19 and 21 are amended for clarity and to even further distinguish over the applied references, claims 25-48 are added and claim 22 is canceled without prejudice to, or disclaimer of, the subject matter recited therein. Claims 13-15, 17, 18, 20 and 23 are amended for clarity and consistency with the amended independent claims. Support for the amendments to claims 12, 16, 19 and 21 and for added claims 25-48 can be found, for example, in Figs. 2 and 4 and on page 16, lines 16-23, on page 20, line 17 to page 21, line 16 and on page 23, lines 9-23 of the specification. No new matter is added. Reconsideration of this application in view of the above amendments and the following remarks is respectfully requested.

I. Information Disclosure Statement

Applicant requests that the Examiner consider the reference cited in the attached Information Disclosure Statement.

II. Claim Rejections

A. §102(e) Rejection Based on Streefkerk

The Office Action rejects claims 12-23 under 35 U.S.C. §102(e) over Streefkerk et al. (Streefkerk), U.S. Patent Application Publication No. 2005/0007569 A1. The rejection of canceled claim 22 is moot. The rejection of claims 12-21 and 23 is respectfully traversed.

Streefkerk et al. does not qualify as a reference against the present application. Streefkerk et al. has a U.S. filing date of May 13, 2004. The present application is the U.S. National Stage of PCT/JP2005/005254 filed March 23, 2005. Furthermore, the PCT application claims priority to Japanese Application No. 2004-89348 filed March 25, 2004. Applicant submits a verified English translation of Applicant's Japanese application, which

supports all pending claims of this application. Accordingly, the present application is entitled to the March 25, 2004 filing date of the Japanese priority application, and thus Streefkerk et al., having a later U.S. filing date, does not qualify as a reference against this application. Withdrawal of the rejection is requested.

B. §102(e) Rejection Based on Novak

The Office Action rejects claims 12-23 under 35 U.S.C. §102(e) over Novak et al. (Novak), U.S. Patent Application Publication No. 2006/0023182 A1. The rejection of canceled claim 22 is moot. The rejection of claims 12-21 and 23 is respectfully traversed.

Novak has a U.S. filing date of September 28, 2005 and is a continuation of PCT/US04/09994 filed April 1, 2004, both after Applicant's earliest priority date of March 25, 2004 (discussed above). Novak claims priority to Provisional Application No. 60/462,112 filed on April 10, 2003 and Provisional Application No. 60/485,033 filed July 2, 2003. Novak does not disclose the combinations of features recited in Applicant's amended independent claims, and therefore it is respectfully submitted that the rejection be withdrawn.

C. §102(b) Rejection Based on Pforr

The Office Action rejects claims 12-23 under 35 U.S.C. §102(b) over Pforr et al. (Pforr) German Patent No. DD 221 563. The rejection of canceled claim 22 is moot. The rejection of claims 12-21 and 23 is respectfully traversed.

Pforr does not disclose an exposure apparatus having a nozzle member comprising at least any one of a supply outlet that supplies a liquid and a collection inlet that collects a liquid, the nozzle member extending around a path of the exposure beam and the nozzle member being rotatable around an axis perpendicular to an optical axis of the optical system...and a position measuring system that measures a position of the nozzle member, as recited in independent claim 12, and similarly recited in independent claims 16, 19 and 21.

Pforr discloses an immersion photolithography device having an auxiliary device 7 and a ring 9 with openings 10 and 11 that can be applied selectively as supply-pieces or exhaust-pieces for immersion liquid 4.1 (see Fig. 3 and page 15, line 24 to page 16, line 2 of the English-language translation). Pforr discloses that a shell 21 is movably arranged in a guide 20 and that a distance in the vertical direction (i.e., optical axis direction) can be measured with a sensor 22 (see Fig. 4 and page 15, lines 11-21). However, Pforr does not disclose that the shell 21 is rotatable around an axis that is perpendicular to the optical axis direction.

Additionally, Pforr discloses that an interval 9 between a surface of a photoresist 26 and a light transmittable disk 3 can be measured through a sensor 22 (see Fig. 4 and page 16, lines 11-13). Pforr discloses that a space a can be adjusted by either lowering auxiliary device 7 or by lifting a disk table (see page 18, lines 16 and 17). However, the lowering of auxiliary device 7 and the raising of the disk table does not imply that either opening 10 or 11 is positionally adjustable with respect to a support structure of the holes 10 or 11. Rather, Fig. 3 only illustrates that openings 10 and 11 are attached to ring 9 and does not disclose that openings 10 and 11 are movable with respect to ring 9.

Therefore, Pforr does not disclose an exposure apparatus having a nozzle member comprising at least any one of a supply outlet that supplies a liquid and a collection inlet that collects a liquid, the nozzle member extending around a path of the exposure beam and the nozzle member being rotatable around an axis perpendicular to an optical axis of the optical system...and a position measuring system that measures a position of the nozzle member, as recited in independent claim 12, and similarly recited in independent claims 16, 19 and 21.

Therefore, independent claims 12, 16, 19 and 21 and dependent claims 13-15, 17, 18, 20 and 23 are patentable over Pforr. Thus it is respectfully requested that the rejection be withdrawn.

D. §102(b) Rejection Based on Carroll

The Office Action rejects claims 12-14 and 19-22 under 35 U.S.C. §102(b) over Carroll, U.S. Patent No. 7,369,217. The rejection of canceled claim 22 is moot. The rejection of claims 12-14 and 19-21 is respectfully traversed.

Carroll does not disclose an exposure apparatus having a a nozzle member comprising at least any one of a supply outlet that supplies a liquid and a collection inlet that collects a liquid, the nozzle member extending around a path of the exposure beam and the nozzle member being rotatable around an axis perpendicular to an optical axis of the optical system...and a position measuring system that measures a position of the nozzle member, as recited in independent claim 12, and similarly recited in independent claims 19 and 21.

Carroll discloses an immersion lithography device where the distance between the last element of a final lens and a workpiece is kept at a constant level by an air gage and a servo control (see col. 4, lines 37-39). This is accomplished by supplying focus air 280 into the substrate via at least one orifice 282 (see Fig. 2B and col. 4, lines 39-41). Carroll discloses that immersion fluid is supplied through immersion fluid supply tube 230 and immersion fluid is removed through immersion fluid removal tube 240 (allegedly corresponding to the claimed nozzle) (see Fig. 2B). The Office Action asserts that the air gage and servo control of Carroll corresponds to the claimed adjustment mechanism. However, the immersion fluid supply tube 230 and the immersion fluid removal tube 240 of Carroll are supported by and move together in the vertical direction with the immersion lithography device as a result of air gage and a servo control. That is, Carroll discloses the immersion lithography device, including the immersion fluid supply tube 230 and the immersion fluid removal tube 240, is movable in the vertical direction (i.e., optical axis direction) with respect to the workpiece (see col. 4, lines 37-40). However, Carroll does not disclose that the immersion fluid supply

tube 230 and the immersion fluid removal tube 240 are rotatable around an axis that is perpendicular to the optical axis direction with respect to the lens assembly.

Further, Carroll does not disclose a position measuring system that measures a position of a nozzle member. Instead, Carroll only discloses maintaining a distance between the last element of a final lens and a workpiece (see col. 4, lines 37-39).

Therefore, Carroll does not disclose an exposure apparatus having a a nozzle member comprising at least any one of a supply outlet that supplies a liquid and a collection inlet that collects a liquid, the nozzle member extending around a path of the exposure beam and the nozzle member being rotatable around an axis perpendicular to an optical axis of the optical system... and a position measuring system that measures a position of the nozzle member, as recited in independent claim 12, and similarly recited in independent claims 19 and 21.

Therefore, independent claims 12, 19 and 21 and dependent claims 13, 14, 20 and 22 are patentable over Carroll. Thus, it is respectfully requested that the rejection be withdrawn.

III. Added Claims

Added claims 25-38, which either directly or indirectly depend from independent claims 12, 16 and 19, respectively, are patentable over the applied references for at least this reason, as well as for the additional features that these claims recite.

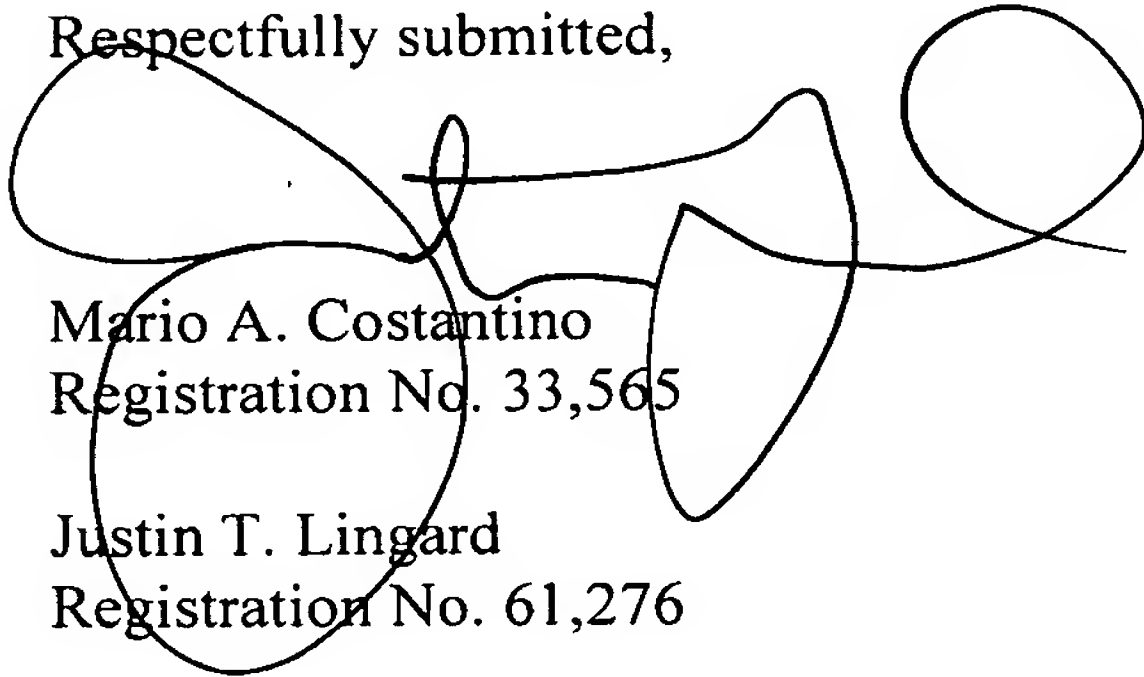
Added independent claim 39 and its dependent claims 40-48 are patentable over the applied references for the same reasons as discussed above with respect to independent claims 12, 16, 19 and 21.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Petition for Extension of Time
Verified English Translation of Japanese Application No. 2004-89348
Information Disclosure Statement
Amendment Transmittal

Date: September 30, 2009

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